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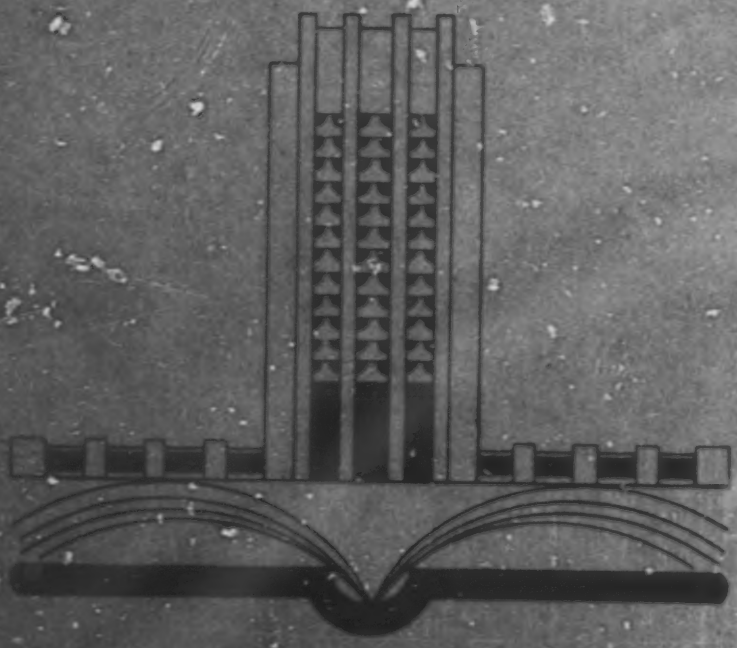

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Researchers have suggested that cultivars adapted specifically to double-crop environments should be developed. Little information is available concerning what plant traits are advantageous in these environments. Sets of near-isogenic lines (isolines) of soybean (Glycine max (L.) Merr.) can be used to evaluate specific plant traits without the confounding effects of different genetic backgrounds. Isolines in 'Harosoy' and 'Clark' genetic backgrounds that possess genes controlling maturity and stem morphology were grown in conventional and in late-planted environments at Urbana, IL in 1980, 1981, and 1982. The isolines tested provided a wide range of maturities and stem lengths, and produced wide differences in yield at both planting dates. Gene combinations that produced maturities of 96 to 101 d in the late environment were among the

highest yielding in both environments. The Dt2 gene combination, which conditions for semideterminate stem growth and shortened internodes, significantly increased yields in both environments in the later maturing backgrounds. Isoline X planting date interactions were small and nonsignificant in the combined analysis over years. Thus, the genes tested conferred no more of a yield advantage in a late-planted environment than they did in a conventional early-planted environment. No evidence was found that any of these traits imparted specific adaptation to late planting. However, the improved performance in both planting times imparted by Dt2 and S is of interest.

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Akunda, E.M.W. ; Odhiambo, J.W. Paris : Editions de l'ORSTOM, 1987. Les Arbres fixateurs d'azote : L'Amelioration biologique de la fertilite du sol : actes des seminaires, 17-25 mars 1986 , Dakar, Senegal / organ par le Cent de recherche pour le dev int et la Fond int pour la science . Paper presented at the Seminar on "Nitrogen Fixing Trees: Biological Improvement of Soil Fertility", March 17-25, 1986, Dakar, Senegal. p. 317-327 Includes references. (NAL Call No.: DNAL S651.A72).

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A preliminary evaluation of legume ley farming in the Australian semi-arid tropics.
McCown, R.L. ; Winter, W.H.-Andrew, M.H.-Jones, R.K.-Peake, D.C.I. Addis Ababa, Ethiopia : International Livestock Centre for Africa, 1986. Potentials of forage legumes in farming systems of Sub-Saharan Africa : proceedings of a workshop held at ILCA, Addis Ababa, Ethiopia, 16-19 September 1985 / edited by I. Haque, S. Jutzi, P.J.H. Neate. p. 397-419. Includes references. (NAL Call No.: DNAL SB203.3.A43P6).

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Preplant tillage effects on population dynamics of soybean insect predators.
CRPSAY. Funderburk, J.E. ; Wright, D.L.-Teare, I.D. Madison, Wis. : Crop Science Society of America. Crop science. Nov/Dec 1988. v. 28 (6). p. 973-977. Includes references. (NAL Call No.: DNAL 64.8 C883).
Tillage operations modify soil habitats where many pests and their natural enemies reside at least during part of their life cycle. Bigeyed bugs (Geocoris spp.) and damsel bugs (Nabis and Reduviolus spp.) are common beneficial polyphagous insect predators in many crops. The objective of this research was to measure effects of tillage on population cycles and population size of those predators to aid in development of cultural IPM (integrated pest management) strategies for biological control of insect pests in soybean (Glycine max (L.) Merr.) double cropped with wheat (Triticum aestivum L.). The four tillage regimes used were no tillage and disk tillage with and without in-row subsoiling. Bigeyed bug nymphal and adult population cycles were similar for each tillage/subsoiling treatment. There were differences between years because in 1986 there was considerable overlap of generations, which was not observed in 1985. Disk tillage treatments had higher bigeyed bug nymphal and adult populations than the no tillage treatments in 1985 and 1986, but subsoiling did not influence population size. Damsel bug population cycles were also similar for all tillage/subsoiling treatments in both years. In 1985, populations of adult and nymphal damsel bugs were lower for no

tillage without subsoiling than for disk tillage without subsoiling, disk tillage with subsoiling, or no tillage with subsoiling. Population sizes were similar for all treatments in 1986.

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Productivity equivalent ratio and statistical testing of its advantage in intercropping.
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The productivity of four forage legumes sown alone and with each of five companion grasses.
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Productivity of pigeonpea-wheat cropping systems.
JASIAB. Singh, K.A. ; Pal, M. Cambridge : Cambridge University Press. The Journal of agricultural science. June 1988. v. 110 (pt.3). p. 645-650. Includes references. (NAL Call No.: DNAL 10 J822).

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Boateng, M. ; Ratchford, C.B.-Blase, M. Essex : Elsevier Applied Science Publishers. Agricultural systems. 1987. v. 24 (2). p. 81-93. Includes references. (NAL Call No.: DNAL HD1.A3).

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Projected costs and returns--rice, soybeans, corn, milo, wheat, wheat-soybean double crop, rice-crawfish double crop, and selected irrigation enterprises--southwest Louisiana, 1988.
McManus, B. ; Zacharias, T. Baton Rouge, La. : The Station. AEA information series - Louisiana Agricultural Experiment Station. Includes statistical data. Jan 1988. (61). 67 p. Includes references. (NAL Call No.: DNAL S67.E2).

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Projected costs and returns--rice, soybeans, corn, milo, wheat, wheat-soybean double crop, rice-crawfish double crop, and selected irrigation enterprises--Southwest Louisiana, 1987.
L4XDA. Zacharias, T.P. ; McManus, B.E.-Broussard, K.A. Baton Rouge, La. : The Station. D.A.E. research report - Department of Agricultural Economics and Agribusiness, Louisiana State University, Louisiana Agricultural Experiment Station. Includes statistical data. Jan 1987. (666). 67 p. Includes references. (NAL Call No.: DNAL 100 L935).

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Putting in a row crop while your tree crop slowly grows.
Russell, J. Fallbrook, Calif. : The Society. Yearbook - California Macadamia Society. 1986. v. 32. p. 37-39. (NAL Call No.: DNAL 94.69 C123).

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Reconciling conflicts in sequential cropping patterns through plant breeding: the example of cotton and wheat in Pakistan's Punjab.
Byerlee, D. ; Akhtar, M.R.-Hobbs, P.R. Essex : Elsevier Applied Science Publishers. Agricultural systems. 1987. v. 24 (4). p. 291-304. Includes references. (NAL Call No.: DNAL HD1.A3).

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Reduced oviposition by green lacewings (Neuroptera: Chrysopidae) on cotton intercropped with corn, beans, or weeds in Nicaragua.
EVETEX. Schultz, B.B. College Park, Md. : Entomological Society of America. Environmental entomology. Apr 1988. v. 17 (2). p. 229-232. Includes references. (NAL Call No.: DNAL QL461.E532).
In an experiment in small plots planted in Nicaragua, counts of green lacewing (Neuroptera: Chrysopidae) eggs were made on cotton intercropped with corn, beans, or weeds, and in cotton monocultures. Significantly fewer eggs were found on cotton plants intercropped with corn and weeds than in cotton monocultures, but cotton plants tended to be smaller in intercrops. The lower chrysopid egg numbers in cotton intercropped with corn or weeds were significant when adjusted for differences in leaf number per cotton plant and mean cotton leaf area, but not significantly lower on cotton intercropped with beans. Mechanisms are suggested to explain the reduction in egg numbers in the intercrops, including a decrease in the numbers of prey(aphids) and the presence of other predators (earwigs).

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Registration of 'Hutcheson' soybean.
CRPSAY. Buss, G.R. ; Camper, H.M. Jr.-Roane, C.W. Madison, Wis. : Crop Science Society of America. Crop science. Nov/Dec 1988. v. 28 (6). p. 1024-1025. Includes references. (NAL Call No.: DNAL 64.8 C883).

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CRPSAY. Musen, H.L. ; Shipe, E.R.-Maxwell, J.D.-Williams, P.F. Jr. Madison, Wis. : Crop Science Society of America. Crop science. May/June 1986. v. 26 (3). p. 648-649. (NAL Call No.: DNAL 64.8 C883).

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JASIAB. Singh, D.P. ; Singh, P.K. Cambridge : Cambridge University Press. The Journal of agricultural science. Feb 1986. v. 106 (pt.1). p. 107-112.

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Relative performance of intercrops at graded levels of fertilizers in maize.
IJAGA. Bhatt, B.S. ; Damor, U.M. New Delhi : Indian Society of Agronomy, Indian journal of agronomy. Dec 1985. v. 30 (4). p. 514-515. (NAL Call No.: DNAL 22 IN235).

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Wells, W.C. ; Lazcano Ferrat, I.R.~Waines, J.G. Geneva, N.Y. : Bean Improvement Cooperative. Annual report of the Bean Improvement Cooperative. Mar 1986. v. 29. p. 114. (NAL Call No.: DNAL SB327.A185).

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Relative sowing time and density of component crops in maize/cowpea intercrop system.
EXAGA. Dfori, F. ; Stern, W.R. Cambridge Cambridge University Press. Experimental agriculture. Jan 1987. v. 23 (1). p. 41-52. Includes references. (NAL Call No.: DNAL 10 EX72).

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Research methods for multiple cropping.
Parkhurst, A.M. ; Francis, C.A. New York Macmillan Pub. Co. ; London : Collier Macmillan, c1986. Multiple cropping systems / editor , Charles A. Francis. Literature review. p. 285-316. ill. Includes references. (NAL Call No.: DNAL S603.7.M85).

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Resource use by intercrops.
Trenbath, B.R. New York : Macmillan Pub. Co. ; London : Collier Macmillan, c1986. Multiple cropping systems / editor , Charles A. Francis. p. 57-81. ill. Includes references. (NAL Call No.: DNAL S603.7.M85).

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Response of current Midwestern soybean cultivars to late planting.
CRPSAY. Raymer, P.L. ; Bernard, R.L. Madison, Wis. : Crop Science Society of America. Crop science. Sept/Oct 1988. v. 28 (5). p. 761-764. Includes references. (NAL Call No.: DNAL 64.8 C883).
Soybean [Glycine max (L.) Merr.] is grown in the Midwestern USA primarily as a full-season crop and only to a limited extent as a double crop following small grains. Development of cultivars specifically adapted to later planting dates commonly associated with double-crop production has been suggested as a means to expand double-crop hectarage in this area. To determine if currently used soybean cultivars differ in their adaptation to late planting and if any specific plant traits are related to improved performance under late-planted conditions, 16 soybean cultivars were evaluated at both conventional (May) and late (late June to early July) planting dates in 1979, 1980, and 1981. Cultivar by planting date interactions were found for days to maturity, height at maturity, seed quality, and seed mottling, but not for yield, days to flowering, height at flowering, lodging, and weight per 100 seeds. All cultivars suffered substantial and similar yield reductions when planted late. Phenotypic correlation coefficients of cultivar performance between the two planting dates were positive and highly significant for all plant traits measured. The relationship of yield with various plant traits varied greatly from year to year and no differences in these relationships were observed between the two planting dates. These results do not furnish any evidence to justify a separate breeding program for the development of double-crop cultivars adapted to the Midwest. The lack of a strong cultivar by planting date interaction for yield and the lack of any strong associations of specific plant characteristics with yield in a late-planted environment imply that testing in a conventional early-planted environment will be effective in identifying lines that perform well in either full-season or double-crop environments.

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Hoff, B.J. ; Brunson, M.W. Baton Rouge : The Department. Report of projects - Louisiana Agricultural Experiment Station, Department of Agronomy. 1986? . p. 148. (NAL Call No.: DNAL 100 L936).

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Risk efficiency of double drop machinery selection via simulation.
McClendon, R.W. ; Wetzstein, M.E.~Edwards, D.M.~Chen, L.H. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1985 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1985. (fiche no. 85-1524). 20 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

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TAAEA. McClendon, R.W. ; Wetzstein, M.E.~Edwards, D.M.~Chen, L.H. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. Sept/Oct 1987. v. 30 (5). p. 1259-1265. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

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The role of farm size and resource contraints in the choice between risky technologies.
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